

Application No. 010/082,036  
Confirmation No. 9501  
Attorney's Docket No. 09367.0019-01000

### REMARKS

It is respectfully requested that this application be reconsidered in view of the above amendments and the following remarks and that all of the claims remaining in this application be allowed. Claims 24-34, 36-38 and 43 are pending. Claims 39-42 and 44-45 have been withdrawn from consideration.

Claims 24 and 31 have been amended by substituting "phenotypic fingerprint" for quantitative phenotypic representations. As the application uses these terms interchangeably (see, e.g., page 9, lines 2-3, and page 28, lines 8-16), Applicants respectfully maintain that no new matter has been added and that no new issue has been raised by the amendment.

#### *Rejections under 35 U.S.C. §102(b)*

Claims 24-34 and 36-38 stand rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Hofland et al. Claims 24-29, 31-34 and 36-38 stand rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Stearns et al. Claims 24-34, 36-38 and 43 stand rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Zietlow et al. These rejections are respectfully traversed.

The present invention, as claimed herein, relates to a method for quantitatively evaluating the effect of a potential therapeutic on different cell types that interact to produce or maintain a disease state or biological condition. During the process in which the cell types are exposed to a stimulus or agent, images of the cells are generated and quantified to provide a unique phenotypic "fingerprint" of each cell. The "fingerprint" is comprised of multiple scalar values of multi-dimensional cellular attributes, which are quantified in the context of specific cellular markers.

In a certain embodiment, a quantitative phenotypic "fingerprint" of each cell is generated following the production of multiple digital images obtained throughout a given cell-agent interaction process. The quantitative phenotype may take the form of a group of scalar or vector descriptors which reflect two or more cellular attributes. These descriptors may represent parameters such as morphological values, composition, changes in a migration pattern, a growth rate, or a cell count. Phenotypic comparisons can then be made using a variety of algorithms comprising techniques for statistical classification, distance based clustering, regression analysis,

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or rule-based classification. Phylogenetic trees may also be created which demonstrate a statistical similarity between the fingerprints from various drugs.

The teachings of the prior art have been described previously. None of the cited art, either alone or in combination, suggests or teaches the creation of a phenotypic fingerprint generated from the digital images of cells, the creation of a phylogenetic tree, or the use of algorithms to demonstrate statistical similarities between phenotypes.

The Office maintains that such limitations are not in the present claims. Applicants respectfully disagree. Specifically, independent claims 24 and 31 recite the generation of "quantitative phenotypic representations". As noted in the specification at page 3, lines 3-4, the "quantitative phenotypes typically take the form of a group of scalar or vector descriptors that together provide a "fingerprint." Moreover, a quantitative phenotype is also sometimes referred to as a phenotypic fingerprint or just "fingerprint." See, e.g., page 28, lines 11-13. As such, Applicants respectfully contend that such limitations are in the present claims. However, the claims have been amended herein to make even more explicit that a quantitative phenotypic "fingerprint" of each cell is generated and compared to a phenotypic fingerprint of a reference cell(s). Applicants request that the rejection be withdrawn.

In view of the above, Applicants submit that this application is now in condition for allowance. A notice to that effect is earnestly solicited.

If it is determined that a telephone conversation would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,

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